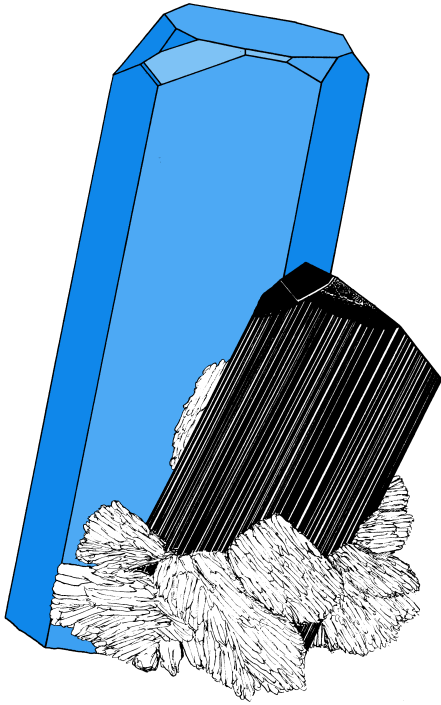


MINI MINERS MONTHLY

A Monthly Publication for Young Mineral Collectors

Vol. 4 No. 2

February 2010



It's February which means that the largest mineral show in the whole world (or so I am told) will soon begin: The Tucson Gem & Mineral Show, sponsored by the Tucson Gem & Mineral Society. Mineral collectors, lapidarists, fossil collectors, and jewelry makers of all kinds come to sunny Tucson to enjoy the warm weather and look at some of the best specimens in the whole world. A lot of these "lookers" will take some specimens home with them, too. "The Main Show," that is, the show run by the Tucson Gem & Mineral Society is only one of many shows that are spread all over Tucson. You can literally spend the entire month of February there enjoying minerals!

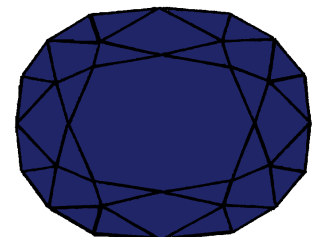
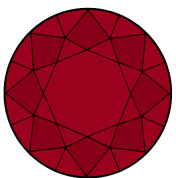
Since The Tucson Show is perhaps one of the most important mineral shows in the entire world, I would like to officially proclaim February as the "Official Month of Mineral Collectors." January is the official month of "The March of Dimes," which is a charity that works for healthy babies. I found a website that says December is the official month of holidays. That makes sense. July is "National Ice Cream Month." (It says so on the internet, so it must be true!) November is the official month of a lot of things including "gratitude," and "the moustache." Diamond

Dan has a moustache, so he likes November. So, we here at *Mini Miners Monthly* now do officially declare

February to be the "Official Month of Mineral Collectors" in honor of the annual Tucson Gem & Mineral Show.

In the January issue there was a contest for the Mini Miners that wanted to answer the questions at the end of the issue. It was a test to see what you learned (and you could look back for the answers!) We received three responses. But there was a little bit of a problem. A computer crash at the *Mini Miners* office erased the entry of one of our Mini Miners. So, if you emailed your answers to me, please do so one more time. Then we will have the drawing for the galena specimen. The winner will be announced in the March issue. Please accept our apologies for this problem.

Every year Diamond Dan Publications creates an information and coloring book for the kids that attend the Tucson Gem & Mineral Show. The theme this year is "Gems & Gem Minerals." Most of the pages in this issue are pages from the Tucson kids' booklet. If you can't be there in person, maybe you can be there through *Mini Miners Monthly*. By the way, next month will be packed with pictures and stories from Tucson. If you have a Tucson Show story to share, please email it to me. It would be great to include your pictures and thoughts in the March issue. Lastly, read this issue carefully. There will be puzzles and games in the March issue testing your new mineral knowledge!



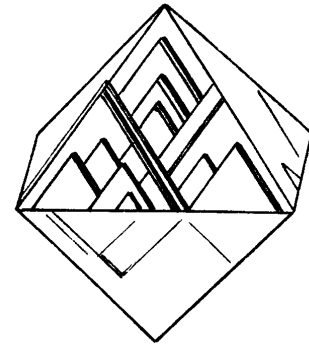
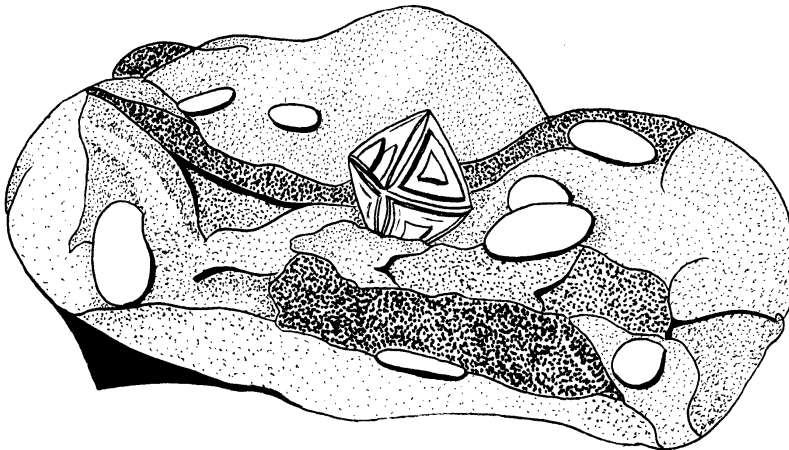
DIAMOND

One of the most famous, popular and valuable of all gems is the diamond. Diamond is number 10 on Mohs' Hardness Scale, making it the hardest substance on Earth. It is so hard that it is actually 4 times harder than corundum (number 9 on the hardness scale) and 8 times harder than topaz (number 8 on the hardness scale).

Most diamonds contain black carbon. These black diamonds are not useful as gems, but they are useful to make diamond blades for cutting and polishing rock. Pure diamonds are colorless. When light shines through them, especially when the diamonds are cut into gems, they break the light into its different colors. You will see flashes of different colors when light hits a gem quality diamond. This is a special optical property of gems called *refraction*. Refraction is a measurement of how much a material breaks light into its individual colors.

Natural diamonds are usually "diamond-shaped," that is, they are octahedral crystals, like the pictures above. They can also form as cubes, and rarely in more complicated crystal forms.

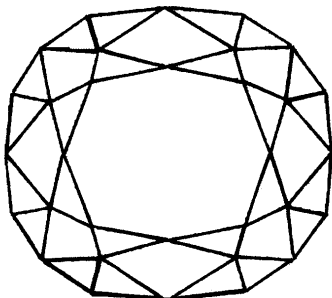
In very rare situations, diamonds can have deep colors, like blue, yellow, red, orange or pink.



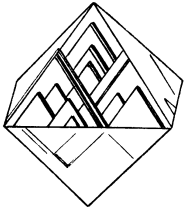
Above left: A diamond crystal in matrix, known as "blue ground"

because it is a dark, grayish-blue color. This specimen is from South Africa.

Above right: A single, octahedral diamond crystal. Note that the faces are composed of smaller octahedra.



Diamonds that are naturally colored are called "fancy diamonds" and can be extremely valuable. The Hope Diamond is one of the most famous fancy diamonds in history. Today it belongs to the Smithsonian Institution in Washington, D.C. and is on display in the Gem Gallery. If you go to the Smithsonian, you will see that the Hope Diamond is set in a necklace and is surrounded by diamonds. Here is a simple drawing of the Hope Diamond by itself.



The name *diamond* literally means "invincible." As a result, people have believed that diamonds have the power to do all sorts of wonderful things for those fortunate enough to wear one. Legend says that diamonds protect people from fire, poisoning, snakes, a variety of sicknesses, floods and even evil spirits. Soldiers who wore diamond would be extremely courageous and, therefore, would be victorious in battle. Diamond rings are given before a couple gets married. This tradition goes back to the days when people believed that diamonds were a sign of purity and would make people love each other even more than they could without the diamond!

THE FOUR C'S OF DIAMONDS

Diamonds are graded based on "the four C's," which are color, clarity, cut and carat weight.

A higher quality gem, which means a more valuable gem, has high scores in each of these categories.

COLOR

is a description of how colorless to yellow a diamond is. The highest quality white diamonds are the ones with absolutely no yellow color at all and are described as *colorless*. The scale is colorless, near colorless, faint yellow and yellow.

CLARITY

is a description of the number of the flaws inside a cut diamond as well as where they are in the diamond. "Flaws" include inclusions and fractures.

CUT

You might think that "cut" refers to the shape of a gem and the facets cut into that gem. However, cut is really a description of the dimensions of the gem. In other words, is it the right width and height so that light goes into the gem from the top and bounces back off of the faces on the bottom of the gem.

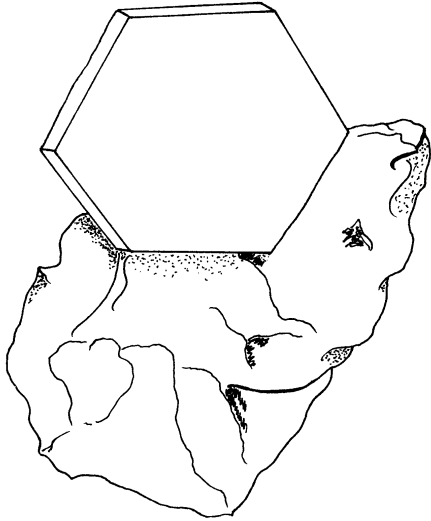
CARAT WEIGHT

is a measure of the weight (and therefore, the size) of a cut diamond. Heavier, larger diamonds are a rarity and are, therefore, more valuable.

The value of a diamond is determined by the combination of its color, clarity, cut and carat weight. Based on what you have learned, describe a diamond of very high value:

CORUNDUM

RUBIES & SAPPHIRES

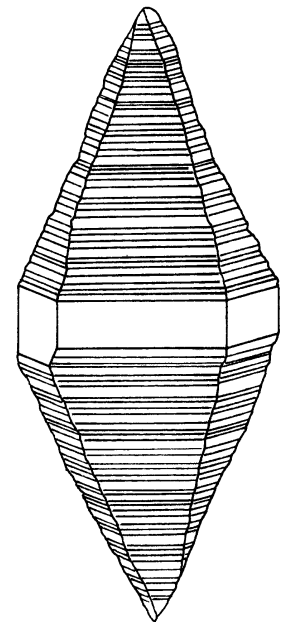


Sapphire is the blue, yellow and colorless variety of the mineral *corundum*. It is number 9 on the Mohs' Hardness Scale. Because it is so hard, corundum is used to make grinding wheels and papers for grinding and polishing softer materials like porcelain, metals and wood, for example. Pure corundum is aluminum oxide, Al_2O_3 , and is colorless. But, if it has small amounts of the element *chromium* it becomes red. Red corundum is called *ruby*. The presence of the elements *iron* and *titanium* in corundum gives a blue color. Blue corundum is called *sapphire*. When gem-quality corundum is another color like yellow, for example, it is called *yellow sapphire* or very simply *fancy corundum*.

Gemologists discovered that lighter blue sapphires can be made dark blue by heating them. A natural, dark blue sapphire is a very valuable gem. Many of the dark blue sapphires sold in jewelry stores have been heat-treated to make them darker.

Above left: A bright red ruby crystal in matrix from Australia.

Above right: a single, doubly terminated sapphire crystal from Sri Lanka.



"World Famous Gemstones" This is a website worth visiting.
http://www.jewelinfo4u.com/World_Famous_Gemstones.aspx

For a long list of links about gemstones, visit this website:
<http://www.emporia.edu/earthsci/amber/go340/gemlinks.htm>

You have to see this "Virtual Museum" with many pictures of minerals, gemstones and fossils. Study the fossil pictures and learn all you can! Sponsored by Cochise College.

<http://skywalker.cochise.edu/wellerr/VGM/intro.htm>